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ART UNIT	PAPER NUMBER
2154	

12

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 May 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-50</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-50</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1 – 50 are presented for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 1-4, 6-8, 11-15, 23, 25-27, 30-35, 36-45 are rejected under 35 U.S.C. 103(a) as

being unpatentable over St. John Herbert, III [US Patent No 6,366,917], in view of Schmuck et

al. [US Patent No 5,940,841], and further in view of Teare et al. [US Patent No 6,151,624].

4.   As per claim 1, St. John Herbert discloses the invention substantially as claimed

including a method of operating a file server in a data network, said method comprising:

      the file server receiving a request for metadata about a file to be accessed [col 3, lines 9-

20 and lines 34-38], the request being received from a data processing device in the data

network [22, 24, 26, Figure 1B].

      St. John Herbert does not specifically disclose

      in response to the request for metadata, the file server granting to the data processing

device a lock on at least a portion of the file, and returning to the data processing device

metadata of the file including information specifying data storage location in the file server for

storing data of the file.

Schmuck discloses

in response to the request for metadata [col 2, lines 57-59], the file server granting to the

data processing device a lock on at least a portion of the file [col 34, lines 64-col 35, lines 9].

Teare discloses

returning to the data processing device metadata of the file including information

specifying data storage location in the file server for storing data of the file [col 2, lines 4-10;

and col 4, lines 54-57].

It would have been obvious to a person skill in the art at the time the invention was made

to combine St. John Herbert, Schmuck and Teare because Schmuck's locking mechanism would

provide efficient basic file control in a shared disk environment for multiple computers [

Schmuck, col 3, lines 50-57].

5.   As per claim 2, St. John Herbert does not specifically disclose the data storage locations,

and a data mover computer for managing locks on files having data stored in said data storage

device, wherein the data storage device stores metadata of a plurality of files having file data

stored in the data storage device, the data mover computer is coupled to the data storage device

for transfer of the metadata between the data storage device and the data mover computer, the

data mover computer has a random access memory, and the method includes the data mover

computer maintaining a metadata cache in the random access memory, and the method includes

the data mover computer accessing the metadata cache for obtaining the metadata that is returned

to the data processing device. Schmuck discloses the data storage locations [Figure 1], and a

data mover computer for managing locks on files having data stored in said data storage device [

Figure 1; and Abstract], wherein the data storage device stores metadata of a plurality of files

having file data stored in the data storage device, the data mover computer is coupled to the data

storage device for transfer of the metadata between the data storage device and the data mover

computer, the data mover computer has a random access memory [Abstract], and the method

includes the data mover computer maintaining a metadata cache in the random access memory,

and the method includes the data mover computer accessing the metadata cache for obtaining the

metadata that is returned to the data processing device [col 31, lines 64-col 32, lines 8]. It

would have been obvious to a person skill in the art at the time the invention was made to

combine John Herbert and Schmuck because Schmuck's teaching of data mover would provide a

caching method that allows to speed up the process of accessing data.

7.   As per claim 3, St. John Herbert does not specifically disclose a plurality of data

processing devices in the data network share read-write access to the file, and the file server

grants respective read locks and write locks to the data processing devices in the data network.

Schmuck discloses a plurality of data processing devices in the data network share read-write

access to the file [col 1, lines 50-65], and the file server grants respective read locks and write

locks to the data processing devices in the data network [col 32, lines 15-25]. It would have

been obvious to a person skill in the art at the time the invention was made to combine the

teaching of St. John Herbert, and Schmuck because Schmuck's granting read and write lock

would provide the ability to allocate storage from the same pool of disks in parallel while

maintaining full consistency of the metadata.

7.   As per claim 4, St. John Herbert discloses the data processing device writes data to the

data storage locations in the file server, modifies the metadata from the file server in accordance

with the data storage locations in the file server to which the data is written [Abstract], and

sends the modified metadata to the file server [154, 156, Figure 20].

8.   As per claim 6, St. John Herbert does not disclose the data processing device has a cache

memory for caching the metadata of the file including a version identifier associated with the

metadata of the file, and wherein the data processing device includes the version identifier in the

request for access to the file, the file server compares the version identifier from the data

processing device to a version identifier of a most recent version of the metadata of the file, and

the file server returns the most recent version of the metadata of the file to the data processing

device when the comparison of the version identifier from the data processing device to the

version identifier of the most recent version of the metadata of the file indicates that the metadata

of the file cached in the cache memory of the data processing device is not the most recent

metadata of the file. Schmuck discloses the data processing device has a cache memory for

caching the metadata of the file including a version identifier associated with the metadata of the

file, and wherein the data processing device includes the version identifier in the request for

access to the file, the file server compares the version identifier from the data processing device

to a version identifier of a most recent version of the metadata of the file, and the file server

returns the most recent version of the metadata of the file to the data processing device when the

comparison of the version identifier from the data processing device to the version identifier of

the most recent version of the metadata of the file indicates that the metadata of the file cached in

the cache memory of the data processing device is not the most recent metadata of the file [col

43, lines 54-64]. It would have been obvious to a person skill in the art at the time the invention

was made to combine the teaching of St. John Herbert and Schmuck because Schmuck's

teaching of versioning would provide an additional step for keep track of data integrity.

9.   As per claim 7, St. John Herbert discloses the version identifier is a number that is

incremented when the metadata of the file is modified [col 9, lines 36-46].

10.   As per claim 8, it is rejected for similar reasons as stated above in claim 1. Furthermore,

Teare discloses

        the client receiving from the file server the metadata of the file, using the metadata of the

file to produce at least one data access command for accessing the data storage locations in the

file server, and sending the data access command to the file server to access the data storage

locations in the file server [col 25, lines 47-59]; and

        the file server responding to the data access command by accessing the data storage

locations in the file server [col 2, lines 11-16].

11.   As per claim 11, it is rejected for similar reasons as stated above in claim 3.

12.   As per claim 12, St. John Herbert does not specifically disclose the lock on at least a

portion of the file granted by the file server to the client is not granted to any particular

application process of the client, and wherein the client has a lock manager that grants a local file

lock to a particular application process that accesses the file. Schmuck discloses the lock on at

least a portion of the file granted by the file server to the client is not granted to any particular

application process of the client, and wherein the client has a lock manager that grants a local file

lock to a particular application process that accesses the file [col 32, lines 15-25]. It would

have been obvious to a person skill in the art at the time the invention was made to combine the

teaching of St. John Herbert and Schmuck because Schmuck's teaching of locking file would

allow data to maintain its integrity inside the communication network.

13.   As per claim 13, St. John Herbert does not specifically disclose the client has a lock

manager that responds to a request from an application process of the client for access to the file

by granting to the application process a local file lock on at least a portion of the file; and then

sending to the file server said at least one request for access to the file. Schmuck discloses the

client has a lock manager that responds to a request from an application process of the client for

access to the file by granting to the application process a local file lock on at least a portion of

the file; and then sending to the file server said at least one request for access to the file [col 33,

lines 39-45]. It would have been obvious to a person skill in the art at the time the invention

was made to combine the teaching of St. John Herbert and Schmuck because Schmuck's

teaching of lock manager would allow to maintain the data consistency inside St. John Herbert'

system.

14.   As per claim 14, it is rejected for similar reasons as stated above in claim 8. Furthermore,

St. John Herbert discloses dynamically linking application programs of the client with input-

output related operating system routines of the client [col 3, lines 20-25].

15.   As per claim 15, it is rejected for similar reason as stated above in claim 4.

16.   As per claims 19 and 20, they are rejected for similar reasons as stated above in claims 6

and 7.

17.   As per claims 23, 25 and 26, they are rejected for similar reasons as stated above in

claims 2, 6, and 7.

18.   As per claim 27, it is apparatus claimed of claims 1 and 8, it is rejected for similar

reasons as stated above in claims 1 and 8.

19.   As per claim 30, it is apparatus claimed of claim 3, it is rejected for similar reason as

stated above in claim 3.

20.   As per claims 31-34, they are apparatus claimed of claims 12-15, they are rejected for

similar reasons as stated above in claims 12-15.

21.   As per claim 35, it is apparatus claimed of claim 6, it is rejected for similar reason as

stated above in claim 6.

22.   As per claim 36, it is program product claimed of claim 1, it is rejected for similar reason

as stated above in claim 1. Furthermore, St. John Herbert discloses at least one network port for

exchange of control information and metadata of files in the file system with at least one data

processing device [Figure 1B].

23.   As per claim 37, it is program product claimed of claim 4, it is rejected for similar reason

as stated above in claim 4.

24.   As per claims 38 and 39, they are rejected for similar reasons as stated above in claim 2.

25.   per claims 40 and 41, they are rejected for similar reasons as stated above in claims 6

and 7.

26.   As per claim 42, it is rejected for similar reasons as stated above in claim 8.

27.   As per claims 43-45, they are rejected for similar reasons as stated above in claims 13-15.

28.   As per claim 49, it is rejected for similar reasons as stated above in claim 6.

29.   Claims 5, 16-18, 22, 24, 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable

over St. John Herbert, III [US Patent No 6,366,917], in view of Schmuck et al. [US Patent No

5,940,841], and further in view of Teare et al. [US Patent No 6,151,624] and Galeazzi et al. [

US Patent No 6,535,868].

30.   As per claim 5, St. John Herbert, Schmuck, Teare do not specifically disclose the data

processing device sends the modified metadata to the file server after the data processing device

writes the data to the data storage of the file server. Galeazzi discloses the data processing

device sends the modified metadata to the file server after the data processing device writes the

data to the data storage of the file server [col 5, lines 58-col 6, lines 15]. It would have been

obvious to a person skill in the art at the time the invention was made to combine the teaching of

St. John Herbert, Schmuck, Teare and Galeazzi because Galeazzi's teaching would allow for

data to be maintained for up to date information.

31.   As per claim 16, they are rejected for similar reasons as stated above in claim 5.

32.   As per claim 17, St. John Herbert, Schmuck and Teare do not disclose the client performs

asynchronous write operations upon the data storage locations of the file server, and wherein the

client sends the modified metadata to the file server in response to a commit request from an

application process of the client. Galeazzi discloses the client performs asynchronous write

operations upon the data storage locations of the file server, and wherein the client sends the

modified metadata to the file server in response to a commit request from an application process

of the client [col 6, lines 24-41]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of St. John Herbert, Schmuck, Teare and Galeazzi because Galeazzi's teaching would provide a step for maintaining data integrity inside communication network.

33.   As per claim 18, Schmuck discloses the client performs asynchronous write operations upon the data storage locations of the file server, and wherein the client sends the modified metadata to the file server when the client requests the file server to close the file [col 43, lines 37-38].

34.   As per claim 22, it is apparatus claimed of claim 5, it is rejected for similar reasons as stated above in claim 5. Furthermore, Schmuck discloses the data mover computer is programmed to receive modified metadata from said each data processing device [col 5, lines 31-38].

35.   As per claims 24, it is rejected for similar reasons as stated above in claims 2 and 5.

36.   As per claims 46-48, they are rejected for similar reasons as stated above in claims 16-18.

37.   Claims 9, 10, 21, 28, 29 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over St. John Herbert, III [US Patent No 6,366,917], in view of Schmuck et al. [US Patent No

5,940,841], and further in view of Teare et al. [US Patent No 6,151,624] and Goldberg et al. [

US Patent No 6,076,092].

38.   As per claim 9, it is rejected for similar reasons as stated above in claim 1. Furthermore,

St. John Herbert, Schmuck, and Teare do not specifically disclose the client sends the data access

command to the data storage device over a data transmission path that bypasses the data mover

computer. Goldberg discloses the client sends the data access command to the data storage

device over a data transmission path that bypasses the data mover computer [col 10, lines 43-49

]. It would have been obvious to a person skill in the art at the time the invention was made to

combine the teaching of St. John Herbert, Schmuck, Teare and Goldberg because Goldberg's

teaching of transmission path that bypasses the data mover computer would reduce

communication traffic and increase performance for the system.

39.   As per claim 10, it is rejected for similar reasons as stated above in claim 2.

40.   As per claims 21, it is apparatus claimed of claims 1 and 9, it is rejected for similar

reasons as stated above in claims 1 and 9.

41.   As per claims 28 and 29, they are rejected for similar reasons as stated above in claims 9

and 10.

42.   As per claim 50, it is rejected for similar reasons as stated above in claims 1, 2, 8 and 9.

43.   Applicant's arguments with respect to claims 1-50 have been considered but are moot in

view of the new ground(s) of rejection.

44.   A shortened statutory period for response to this action is set to expire **3 (three) months

and 0 (zero) days** from the mail date of this letter. Failure to respond within the period for

response will result in **ABANDONMENT** of the application (see 35 U.S.C 133, M.P.E.P

710.02, 710.02(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dustin Nguyen whose telephone number is (703) 305-5321. The

examiner can normally be reached on Monday – Friday (8:00 – 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (703) 305-9678.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directly to the receptionist whose telephone number is (703) 305-3900.

Dustin Nguyen

ZARNI MAUNG
PRIMARY EXAMINER